

SECTION 08830

MIRRORS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following types of silvered flat glass mirrors.
 - 1. Laminated glass mirrors qualifying as safety glazing.
- B. Related Sections:
 - 1. Section 08800: Glass and Glazing.
 - 2. Section 10810: Toilet Accessories; for metal-framed mirrors.

1.02 DEFINITIONS

- A. Deterioration of Mirrors: Defects developed from normal use that are attributable to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning mirrors contrary to mirror manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.

1.03 PERFORMANCE REQUIREMENTS

- A. Provide mirrors that will not fail under normal usage. Failure includes glass breakage and deterioration attributable to defective manufacture, fabrication, and installation.

1.04 SUBMITTALS

- A. Product Data; for the following:
 - 1. Mirror mastic.
 - 2. Mirror hardware.
- B. Shop Drawings: Include dimensioned mirror elevations, edge details, mirror hardware, and attachments to other work.
- C. Samples: For each type of mirror product required, in the form indicated below:
 - 1. Mirror clips.
 - 2. Mirror trim, 6 inches long.
- D. Warranty: Special warranty specified in this Section.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed mirror glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in mirror installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under NGA's Glazier Certification Program as Level 2 (Senior Glaziers) or Level 3 (Master Glaziers).

- B. Source Limitations for Mirrors: Obtain mirrors from one source for each type of mirror indicated.
- C. Source Limitations for Mirror Glazing Accessories: Obtain mirror glazing accessories from one source for each type of accessory indicated.
- D. Glazing Publications: Comply with the following published recommendations:
 - 1. GANA's "Glazing Manual" unless more stringent requirements are indicated. Refer to this publication for definitions of glass and glazing terms not otherwise defined in this Section or in referenced standards.
 - 2. GANA Mirror Division's "Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."
- E. Safety Glazing Products: For laminated mirrors, provide products complying with testing requirements in 16 CFR 1201 for Category II materials.
- F. Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing film and substrates on which mirrors are installed.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with mirror manufacturer's written instructions for shipping, storing, and handling mirrors as needed to prevent deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors, protected from moisture including condensation.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install mirrors until ambient temperature and humidity conditions are maintained at levels indicated for final occupancy.

1.08 WARRANTY

- A. Special Warranty: Manufacturer's standard form, made out to Agency Representative and signed by mirror manufacturer agreeing to replace mirrors that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below:
 - 1. Warranty Period: Five years from date of manufacture.

PART 2 PRODUCTS

2.01 SILVERED FLAT GLASS MIRROR MATERIALS

- A. Clear Glass Mirrors: ASTM C 1503, Mirror Select Quality.

- B. Annealed Float Glass for Inner Lite of Laminated Mirrors: ASTM C 1036, Type I (transparent flat glass), Quality-Q3; Class 1 (clear).

2.02 MISCELLANEOUS MATERIALS

- A. Setting Blocks: Elastomeric material with a Type A Shore durometer hardness of 85, plus or minus 5.
- B. Edge Sealer: Coating compatible with glass coating and approved by mirror manufacturer for use in protecting against silver deterioration at mirrored glass edges.
- C. Mirror Mastic: An adhesive setting compound, produced specifically for setting mirrors and certified by both mirror manufacturer and mastic manufacturer as compatible with glass coating and substrates on which mirrors will be installed.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Gunther Mirror Mastics.
 - b. Palmer Products Corporation.

2.03 MIRROR HARDWARE

- A. Top and Bottom Aluminum J-Channels: Aluminum extrusions with a return deep enough to produce a glazing channel to accommodate mirrors of thickness indicated and in lengths required to cover bottom and top edges of each mirror in a single piece.
 - 1. Bottom Trim: J-channels formed with front leg and back leg not less than 3/8 and 7/8 inch in height, respectively, and a thickness of not less than 0.05 inch.
 - 2. Top Trim: J-channels formed with front leg and back leg not less than 5/8 and 1 inch in height, respectively, and a thickness of not less than 0.062 inch.
 - 3. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bottom Trim:
 - 1) Laurence, C. R. Co., Inc.; CRL Standard "J" Channel.
 - 2) Sommer & Maca Industries, Inc.; Heavy Gauge Aluminum Shallow Nose "J" Moulding Lower Bar.
 - b. Top Trim:
 - 1) Laurence, C. R. Co., Inc.; CRL Deep "J" Channel.
 - 2) Sommer & Maca Industries, Inc.; Heavy Gauge Aluminum Deep Nose "J" Moulding Lower Bar.
 - 4. Bottom Trim (Optional to Above): J-channels formed with front leg and back leg not less than 5/16 and 3/4 inch in height, respectively.
 - 5. Top Trim (Optional to Above): Formed with front leg with a height of 5/16 inch and back leg designed to fit into the pocket created by wall-mounted aluminum cleat.
 - 6. Product: Subject to compliance with requirements, provide the following:
 - a. Bottom Trim: C. R. Laurence Co., Inc.; D638 FHA Type "J" Channel.
 - b. Top Trim: C. R. Laurence Co., Inc.; D 1638 Top Channel.
 - c. Cleat: C. R. Laurence Co., Inc.; D 1637M Mirror Mount System Cleat.
- B. Plated Steel Hardware: Formed-steel shapes with plated finish as selected by Agency Representative.

- C. Fasteners: Fabricated of same basic metal and alloy as fastened metal and matching it in finished color and texture where fasteners are exposed.
- D. Anchors and Inserts: Provide devices as required for mirror hardware installation. Provide toothed or lead-shield expansion-bolt devices for drilled-in-place anchors. Provide galvanized anchors and inserts for applications on inside face of exterior walls and where indicated.

2.04 FABRICATION

- A. Mirror Sizes: To suit Project conditions, cut mirrors to final sizes and shapes.
- B. Cutouts: Fabricate cutouts for notches and holes in mirrors without marring visible surfaces. Locate and size cutouts so they fit closely around penetrations in mirrors. Cut mirrors to allow attachment of wall-mounted ballet barre.
- C. Mirror Edge Treatment: Rounded polished edge, typical.
 - 1. Seal edges of mirrors after edge treatment to prevent chemical or atmospheric penetration of glass coating.
 - 2. Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.
- D. Laminated Safety Mirrors: Glass Type G6. Provide laminated mirrors fabricated to produce units complying with ASTM C 1172, Kind LM, and the following:
 - 1. Glass Lites: Outer lite of mirror glass with silver coating on second surface and inner lite of clear float glass. Thickness of each lite = 3/16 inch (5 mm).
 - 2. Interlayer Material: Mirror manufacturer's standard 0.030 inch (0.76 mm) thick, polyvinyl-butyl interlayer with a proven record of showing no tendency to delaminate from, or cause damage to, silver coating.
 - 3. Laminating Process: Laminate glass using laminator's standard heat-plus-pressure process to produce glass free from foreign substances, air or glass pockets, and other defects.
 - 4. Seal edges of laminated units to comply with written requirements of interlayer manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, over which mirrors are to be mounted, with Installer present, for compliance with installation tolerances, substrate preparation, and other conditions affecting performance.
 - 1. Verify compatibility with and suitability of substrates, including compatibility of mirror mastic with existing finishes or primers.
 - 2. Proceed with mirror installation only after unsatisfactory conditions have been corrected and surfaces are dry.

3.02 PREPARATION

- A. Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating surfaces with mastic manufacturer's special bond coating where applicable.

3.03 INSTALLATION

- A. General: Install mirrors to comply with mirror manufacturer's written instructions and with

referenced GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.

- B. Provide a minimum air space of 1/8 inch between back of mirrors and mounting surface for air circulation between back of mirrors and face of mounting surface.
- C. For wall-mounted mirrors, install mirrors with mastic and mirror hardware.
 - 1. Attach mirror hardware securely to mounting surfaces (solid framing or blocking) with mechanical fasteners installed with anchors or inserts as applicable. Install fasteners so heads do not impose point loads on backs of mirrors.
 - 2. For mirror hardware in the form of continuous J-channels at bottom, provide setting blocks 1/8 inch thick by 4 inches long at quarter points. To prevent trapping water, provide, between setting blocks, 2 slotted weeps not less than 1/4 inch wide by 3/8 inch long.
 - 3. For mirror hardware in the form of a continuous J-channel at bottom and continuous top trim at top, fasten J-channel directly to wall and attach top trim to continuous cleat fastened directly to wall.
 - 4. Where indicated, install mirror hardware in the form of J-channels that are fabricated in single lengths to fit and cover top and bottom edges of mirrors.
 - 5. Install mastic as follows:
 - a. Apply mastic to comply with mastic manufacturer's written instructions for coverage and to allow air circulation between back of mirrors and face of mounting surface.
 - b. After mastic is applied, align mirrors and press into place while maintaining a minimum air space of 1/8 inch between back of mirrors and mounting surface.

3.04 CLEANING AND PROTECTION

- A. Protect mirrors from breakage and contaminating substances resulting from construction operations.
- B. Do not permit edges of mirrors to be exposed to standing water.
- C. Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.

END OF SECTION